UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/671,468	09/27/2000	Kazutomo Hasegawa	FUSA 17.792	7120

26304 7590 11/04/2004	EXAMINER
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ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 11/04/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _03 September 2004_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _13-22_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _13-22_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _03 September 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant has not responded to the objection to the disclosure. Therefore, Examiner has

maintained the objection to the specification.

2.   Applicant's arguments filed 9/3/2004 have been fully considered but they are not

persuasive. On page 17 of the Response, Applicant argues that "neither Long nor Quereshi

specifically disclose or suggest Applicants' claimed incorporation of timing information as part

of a training symbol sequence." Examiner, respectfully, disagrees. Applicant does not specify the

form of the "training information." Therefore, Examiner is free to interpret the phrase as broadly

as possible, as long as the interpretation is reasonable. Quereshi discloses including a phase

change in the training signal, which allows the units to synchronize (col. 4, lines 34-40). As

broadly defined, this phase change, which permits synchronization, is timing information.

Therefore, Quereshi explicitly teaches incorporating timing information as part of a training

symbol sequence (Quereshi: col. 4, lines 34-40).

3.   Applicant further argues that "insufficient motivation exists for combining the Long and

Quereshi references." Again, Examiner, respectfully, disagrees. Long teaches "as part of training

all central office modems may make the crosstalk measurement together" (col. 11, lines 64-66)

in order to determine the timing of the system. In addition, the line cards also make

measurements before normal operations begin (col. 11, lines 33-36). Thus, before normal

operations begin, Long teaches that the central office modems obtain information about the

crosstalk periods and that the line cards obtain timing information about the system. Long does

not disclose how the central office modems synchronize to the line cards such that the system

will transmit at the proper times. Quereshi teaches how synchronization is achieved during the

training sequence. Taken together, Long and Quereshi teach how a system will obtain and

implement timing information relating to the effects of crosstalk during the training sequence.

4.   Additionally, Applicant argues that Long teaches away from the claimed invention since

"Long suggests that [timing] information be provided periodically 'during normal operation.'"

Examiner, respectfully, disagrees. Long teaches that "in order to maintain the correct transmit

time during normal operation, silent periods can be inserted." Thus, this information is provided

in order to *maintain* timing. In order to maintain timing, it is inherent that the timing exists in the

first place. Long also teaches that the "information" is provided during modem training (col. 11,

lines 56-58). Thus, Long does not teach away from Applicants' claimed invention since Long

explicitly teaches determining timing information during modem training and then maintaining

this timing during normal operation.

5.   For the above reasons, Examiner maintains the rejection of claims 13-22.

Specification

6.   The disclosure is objected to because of the following informalities: on page 6, line 11

"multiploxing" should be "multiplexing"; on page 10, line 27 "whish shows The bit" should be

"which shows the bit"; and on page 48, line 7 "data form" should be "data from".

        Appropriate correction is required.

7.   Examiner requests that the application information seen on page 9, lines 3-4 be updated

to reflect any changes in the status of the application.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

9.   Claims 13-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Long et al

(USPN 5,991,311) in view of Qureshi et al (USPN 4,756,007).

10.   Regarding claims 13, 18, and 22, Long discloses a digital subscriber line transmission

method, apparatus, and system for transmitting downstream data from a device on an office side

to a device on a subscriber side and upstream data from the device on the subscriber side to the

device on the office side over a single line by switching between these data transmissions in

time-division fashion, dividing data of one symbol, modulating carrier waves having different

frequencies by each item of divided data and frequency-multiplexing the modulated signals, and

transmitting the frequency-multiplexed signals in bursts a few symbols at a time (col. 4, lines 20-

61 and col. 6, lines 25-57), said method comprising the steps of and said apparatus and system

comprising means for: a cable for accommodating said line as a first line (DSL line) and another

line as a second line (ISDN line) on which transmission of downstream data and transmission of

upstream data are performed in time-division fashion (col. 4, lines 20-61 and col. 6, lines 25-57);

a training-symbol transmitting unit for transmitting a training symbol via said first line at time of

training carried out prior to data communication (col. 11, line 54-col. 12, line 4); and a

training-symbol receiving unit for receiving a training symbol via said first line (col. 11, line 54-

col. 12, line 15) where it is implicit that a receiving unit is present; said transmitting unit

including: timing-information determining means for determining timing information, which

specifies an interval in which effects of crosstalk from said second line are received (col. 4, lines

20-61; col. 6, lines 25-57; col. 11, lines 3-10; and col. 11, line 54-col. 12, line 15), and

transmitting means for transmitting the timing-information to the receiving unit at a time carried

out prior to data communication (col. 4, lines 20-61; col. 6, lines 25-57; col. 11, lines 3-10; and

col. 11, line 54-col. 12, line 15) where it is implicit that the timing information is determined

prior to data communication; and said receiving unit includes: means for extracting the timing

information (col. 4, lines 20-61; col. 6, lines 25-57; col. 11, lines 3-10; and col. 11, line 54-col.

12, line 15); and a processor for executing processing based upon this timing information (col. 4,

lines 20-61; col. 6, lines 25-57; col. 11, lines 3-10; and col. 11, line 54-col. 12, line 15). Long

does not disclose said training-symbol transmitting unit includes: timing-information insertion

means for inserting timing information, which specifies an interval in which effects of crosstalk

from said second line are received, into a training symbol sequence at time of training carried out

prior to data communication; and means for transmitting the training symbol sequence into

which the timing information is inserted from the device on the office side to the device on the

subscriber side; and said training-symbol receiving unit includes: means for extracting the timing

information from the training symbol sequence; and a processor for executing training

processing based upon this timing information. Rather Long discloses that the timing

information is determined by modems at the office side, and then distributed to the other

modems (col. 4, lines 20-61; col. 6, lines 25-57; col. 11, lines 3-10; and col. 11, line 54-col. 12,

line 15); however, Long does not disclose how this distribution occurs. Qureshi discloses, in a

modem communication system, a training-symbol transmitting unit including:

timing-information insertion means for inserting timing information, into a training symbol

sequence at time of training carried out prior to data communication (col. 4, lines 10-44); and

means for transmitting the training symbol sequence into which the timing information is

inserted (col. 4, lines 10-44); and a training-symbol receiving unit including: means for

extracting the timing information from the training symbol sequence (col. 4, line 10-44); and a

processor for executing training processing based upon this timing information (col. 4, lines 10-

44) where it is implicit that this is done in order to synchronize the receiver to the timing of the

transmitter prior to data communication. It would have been obvious to one of ordinary skill in

the art at the time of the invention to have a training-symbol transmitting unit including:

timing-information insertion means for inserting timing information, which specifies an interval

in which effects of crosstalk from said second line are received, into a training symbol sequence

at time of training carried out prior to data communication; and means for transmitting the

training symbol sequence into which the timing information is inserted from the device on the

office side to the device on the subscriber side; and said training-symbol receiving unit includes:

means for extracting the timing information from the training symbol sequence; and a processor

for executing training processing based upon this timing information in order to transmit the

timing information of the crosstalk periods to the receiving modem so that synchronization can

occur before data communication.

11.   Regarding claims 14 and 19, referring to claims 13 and 18, Long in view of Qureshi

discloses that when said second line is a line which transmits data by switching between

transmission of the downstream data and transmission of the upstream data in time-division

fashion, the timing information indicates a reference timing for switching between transmission

of the downstream data and transmission of the upstream data in time-division fashion in the

second line (Long: col. 4, lines 20-61; col. 6, lines 25-57; col. 11, lines 3-10; and col. 11, line 54-

col. 12, line 1).

12.   Regarding claims 15, 20, and 23, referring to claims 13, 18, and 22, Long in view of

Qureshi discloses that the timing information is incorporated in the training symbol sequence by

varying the phase of training symbols (Qureshi: col. 4, line 10-44).

13.   Regarding claims 16 and 21, referring to claims 15 and 20, Long in view of Qureshi

discloses that the phase of adjacent symbols constructing a training symbol sequence is varied by

90° or 180° (Qureshi: col. 4, line 10-44).

14.   Regarding claim 17, referring to claim 15, Long in view of Qureshi discloses that a

carrier wave of a predetermined frequency is quadrature modulated and the phase between

adjacent symbols obtained by quadrature modulation is varied (Long: col. 13, lines 16-25 and

Qureshi: col. 4, line 10-44).

Conclusion

15.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The

examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

                                        DJR   Daniel J. Ryman
                                                  Examiner
                                                  Art Unit 2665

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